



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/760,682 | 01/16/2001 | Masum Choudhury | A1-057 US | 4082 |
| 7590 | 06/03/2004 | | EXAMINER | |
| Romi Bose MOLEX INCORPORATED 222 Wellington Court Lisle, IL 60532 | | | | WANG, GEORGE Y |
| | | ART UNIT | PAPER NUMBER | 2871 |

DATE MAILED: 06/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/760,682 | CHOWDHURY ET AL. |
| | Examiner | Art Unit |
| | George Y. Wang | 2871 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 April 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-16, 18-29, 31-39 and 41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-16, 18-29, 31-39 and 41 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 23 December 2002 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 28, 2004 has been entered.

Claim Objections

2. Claims 1, 21, and 33 are objected to because the claim recites the limitation "the substrate module held in place in a fiber optic circuit without the use of adhesive." There is insufficient antecedent basis for this limitation in the claim in specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-11, 13-16, 18-25, 27-29, 31-39, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunin et al. (U.S. Patent No. 5,907,651, hereinafter "Bunin") in view of Yanagawa et al. (U.S. Patent No. 5,297,228, hereinafter "Yanagawa"), and in further view of Benham et al. (U.S. Patent No. 6,324,323, hereinafter "Benham").

Bunin discloses a passive alignment fiber optic connection system (fig. 3) and method having a two connector modules (fig. 3, ref. 24, 32) with a plurality of optical fibers (fig. 3, ref. 36) terminating flush against the connector face (col. 4, lines 29-32). Bunin also teaches at least two projecting pins (fig. 3, ref. 38) with corresponding pin passages (fig. 3, ref. 42) spaced from one another and from optical fibers with predetermined alignment patterns (fig. 4, ref. 54, 60, 100; col. 4, lines 55-58) for center-to-center alignment between connectors. The respective ends of the fibers, which are generally perpendicular to the connector face, are closely spaced (fig. 3) from that of the other connector, whose face is also generally perpendicular to the length of the guides,

before fully engaging in contact alignment (col. 2, lines 23-54). Bunin also teaches the use of filler to accommodate fiber waveguides (col. 4, lines 62-65).

However, Bunin fails to specifically disclose a substrate, which contains no fibers and no grooves for receiving fibers, that serves as an intermediary between the two connector modules held in place without the use of adhesives. Furthermore, the Bunin reference does not specifically teach a substrate that is made of two wafers such that one wafer has a plurality of waveguides while the other has a plurality of channels with when assembled together, contains filler to accommodate the waveguides.

Yanagawa discloses an optical waveguide connector with an intermediary substrate module (fig. 5, ref. B2) that contains waveguides that are generally perpendicular to the face of the substrate and no fibers or grooves for receiving fibers. Yanagawa also teaches two wafers, one having a plurality of waveguides (fig. 2) while the other having a plurality for corresponding channels (fig. 1) for assembly.

Benham discloses an optical waveguide module connector that is held in place in a fiber optic circuit without the use of adhesives (col. 2, lines 39-54).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have sandwiched between two connector modules a dual wafer substrate module containing no optical fibers or grooves for receiving fibers since one would be motivated by a high-reliability connection that can be carried out in a short time (col. 2, lines 2-7). Furthermore, providing a waveguide substrate not only permits ease of connection, but also significantly reduces optical loss (col. 3, lines 11-12).

It would have also been obvious to one of ordinary skill in the art at the time the invention made to have used filler for the combination of the wafers in the substrate of Yanagawa as with the connector of Bunin since one would be motivated to hold and fix the waveguides in a proper spaced relationship to facilitate accurate alignment (abstract).

It would have also been obvious to one of ordinary skill in the art at the time the invention was made to have held the substrate module in place in a fiber optic circuit without the use of adhesives since would be motivated to eliminate the adverse effects of automatic and manual alignment, such as light coupling loss and poor alignment (col. 1, lines 44-57).

5. Claims 12 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunin, Yanagawa, and Benham, in view of Applicant's Admission of Prior Art (AAPA).

Bunin and Yanagawa disclose the optical connection system as recited above. However, neither of the references specifically disclose the connection system for use in DWDM products.

AAPA discloses the use of connection systems in DWDM products (pg. 3, line 23 – pg. 4, line 4).

It would have been obvious to one of ordinary skill at the time the invention was made to make use of a connection system in DWDM products since it is well known that

in DWDM products, multiplexing can be used to combine channels of difference wavelengths with minimum inter-channel cross-talk (pg. 3, lines 13-15).

Response to Arguments

6. Applicant's arguments with respect to claims 1-16, 18-29, 31-39, and 40 have been considered but are moot in view of the new ground(s) of rejection.

Applicant has amended the independent claims to include the negative limitation that "the substrate module is held in place in a fiber optic circuit without the use of adhesives." While the limitation is not adequately supported by the specification, Examiner has objected to the claims for lacking an antecedent basis. Also, even if the limitation were supported by the written description, Examiner notes that is clear the Benham reference discloses holding a substrate module in place without the use of adhesives (see above Rejection). As such, Examiner maintains rejection.

Conclusion

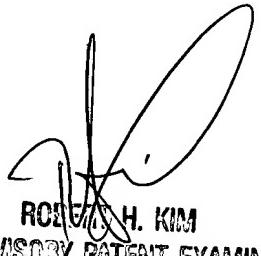
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2871

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gw
June 1, 2004



ROSE S. H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800